

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for treating a spent ionic liquid composition comprising an ionic liquid composition and contaminants, the method comprising heating said spent ionic liquid composition under reduced pressure at or below 2 mmHg at a temperature in a range from 200°C to 300°C so as to form a partial decomposition product thereof, separating said partial decomposition product from said contaminants and reacting regenerating said ionic liquid composition from the separated partial decomposition product with a reactant to regenerate said ionic liquid.

2. (Currently Amended) A The method according to claim 1 wherein said partial decomposition product is separated together with at least one other decomposition product from said contaminants.

3. (Currently Amended) A The method according to claim 2 ~~or claim 3~~ wherein said partial decomposition product is separated from the at least one other decomposition product by distillation.

4. (Currently Amended) A The method according to ~~any of the preceding claims~~ claim 3 wherein said partial decomposition product is reacted with said at least one

other decomposition produced product to regenerate said ionic liquid composition.

5. (Currently Amended) A The method according to any ~~of the preceding claims~~ claim 3 wherein said separation is effected by volatilisation during the heating process.

6. (Currently Amended) A The method according to any preceding claim 1 wherein the ionic liquid composition is 1-methyl-3-ethylimidazolium chloride.

7. (Currently Amended) A The method according to claim 6 wherein the partial decomposition product is a mixture of 1-methylimidazole, 1-ethylimidazole, chloromethane and chloroethane.

8. (Currently Amended) A The method according to claim 7 wherein 1-methylimidazole is reacted with chloroethane to regenerate 1-methyl-3-ethylimidazolium chloride.

9. (Currently Amended) A The method according to claim 5 6 wherein the partial decomposition product is 1-ethylimidazole.

10. (Currently Amended) A The method according to claim 9 wherein 1-ethylimidazole is reacted with chloromethane to regenerate 1-methyl-3-ethylimidazolium chloride.

11. (Canceled)

12. (Cancelled)

13. (Cancelled)

14. (Currently Amended) A The method according to claim 13 1 wherein the spent ionic liquid composition is heated to a temperature from 220 to 250°C.

15. (Currently Amended) A The method according to any ~~claims 3 to 14~~ claim 5 wherein volatile products resulting from volatilisation of the spent ionic liquid composition are collected in a cold trap in a system.

16. (Currently Amended) A The method according to any preceding claim 15, wherein one of said volatile products is hydrogen chloride which is produced by heating said spent ionic liquid composition and is scrubbed from the system using a hydroxide scrubber.

17. (Currently Amended) A The method according to any preceding claim 7, wherein hydrogen chloride and/or ethene is produced by heating said spent ionic liquid composition.

18. (Currently Amended) A The method according to claim 17 wherein said ethene is bottled or burnt as a by product.

19. (Currently Amended) A process for the reprocessing of nuclear fuel and the treatment of treating salt wastes contaminated with fission products thereby forming a fission product contaminant residue, the process

including a method ~~of any preceding claim~~ for treating a spent ionic liquid composition according to claim 1.

20. (Currently Amended) A The process according to claim 19 wherein the fission product contaminant residue is separated and calcined before disposal.

21. (Currently Amended) A The process according to claim 19 wherein the fission product contaminant residue is reacted with boric acid before disposal.